

Anathallis marginata (Orchidaceae, Pleurothallidinae): a new record from the state of São Paulo, Brazil^a

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Abstract

The species *Anathallis marginata* (Barbosa Rodrigues) F.Barros & Barberena is recorded for the first time from the state of São Paulo, Brazil. The species was found in the central portion of this state, occurring along mesophytic semideciduous forests.

Résumé

Anathallis marginata (Orchidaceae, Pleurothallidinae): nouvelle observation dans l'état de Sao Paulo, Brésil – L'espèce *Anathallis marginata* (Barbosa Rodrigues) F.Barros & Barberena est enregistrée pour la première fois de l'Etat de São Paulo (Brésil). L'espèce a été trouvée dans la partie centrale de l'Etat, croissant le long de forêts semi-décidues mésophiles.

Resumo

Anathallis marginata (Orchidaceae, Pleurothallidinae): novo registro de ocorrência para o estado de São Paulo, Brasil - A espécie *Anathallis marginata* (Barbosa Rodrigues) F.Barros & Barberena é registrada pela primeira vez para o estado de São Paulo, Brasil. A espécie foi encontrada na porção central do estado, ocorrendo ao longo de florestas mesofíticas semidecíduas.

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Introduction

Pleurothallidinae comprises approximately 4100 species and 37 genera distributed along tropical and subtropical regions, from Florida to Argentina and West Indies. Some treatments for Pleurothallidinae have included species of *Anathallis* Barbosa Rodrigues within *Pleurothallis* s.l., subgenera *Acuminatia* and *Specklinia* (Pridgeon & Chase, 2001). Currently, however, *Anathallis* has been regarded as distinct from *Pleurothallis* based on its free lateral sepals. The genus includes approximately 120 species distributed from Southern Mexico and West Indies to Brazil and Argentina (Pridgeon *et al.*, 2005). In Brazil, *Anathallis* is represented by 80 species (Barros *et al.*, 2012). Among them there is *Anathallis marginata* (Barbosa Rodrigues) F.Barros & Barberena (= *Pleurothallis limbata* Cogniaux), a species reported from Central-Western (Distrito Federal), Southeastern (Minas Gerais and Rio de Janeiro) and Southern (Santa Catarina) Brazil, occurring in areas with Atlantic Rain Forest Domain (Barros *et al.*, 2012).

During the developing of a floristic survey of the orchid family in the central portion of the State of São Paulo, Brazil, a population with approximately fifteen adult individuals of an unidentified species of *Anathallis* was found (Ferreira *et al.*, 2010). After flowering, the species was identified as *Anathallis marginata*, a taxon never before recorded in the state of São Paulo state (see Barros *et al.*, 2012). A complete taxonomic description of this species, data on habitat and distribution, and morphological characters useful for species identification are presented.

Material and methods

Plant material was collected in municipality of São Carlos (21°57'34" S, 47°50'42" W; 850 m a.s.l.) in the State of São Paulo (southeastern Brazil). The region is an ecotone between the Atlantic Rainforest and Cerrado vegetation (Kronka *et al.*, 1993; Soares *et al.*, 2003). The climate is classified as "Cwa" (mesothermic) with a rainy summer (October to March) and dry winter (April to September) (Köppen, 1948).

Fresh material of flowering and fruiting plants were used for the description. Illustrations were based on specimens collected in the field and maintained in a greenhouse at the Botany Department in the Federal University of São Carlos, municipality of São Carlos (approximately 22°01' S, 47°53' W; 854 m a.s.l.), until flowering occurrence.

The flowers and floral features were drawn using a stereomicroscope attached to a camera lucida. Measurements were made directly from floral structures using a caliper rule. The vegetative structures, inflorescence and flowers were photographed with a Canon EOS Rebel X digital camera. Floral details were photographed with a stereomicroscope Stereozoom Leica S8 APO with an integrated photo output. The terminology for the shapes of the leaves follows Radford *et al.* (1974). The features specific to the Orchidaceae were based on Dressler (1993) and Pridgeon *et al.* (1999).

Results and discussion

Anathallis marginata (Barbosa Rodrigues) F.Barros & Barberena, *Rodriguésia* 61(1): 129 (2010); *Lepanthes marginata* Barbosa Rodrigues, *Genera et Species Orchidearum novarum* 2: 68 (1881). Type: BRAZIL. Rio de Janeiro: Rio de Janeiro, Pascoinha, X, J.B. Rodrigues s.n. (holotype RB, destroyed); lectotype, fig. C, tab.133, vol. 3 (J. Barbosa Rodrigues, *Iconographie des Orchidées du Brésil*, reproduced in Sprunger *et al.* (1996, p.191), designed by Barros & Barberena (2010)).

Synonyms: *Pleurothallis limbata* Cogniaux, in Martius, Eichler & Urban, *Flora Brasiliensis* 3(4): 485 (1896); *Specklinia limbata* (Cogniaux) Luer, *Monographs in Systematic Botany from the Missouri Botanical Garden* 95: 261 (2004); *Panmorphia limbata* (Cogniaux) Luer, *Monographs in Systematic Botany from the Missouri Botanical Garden* 105: 177 (2006).

Epiphyte herbs, caespitose. Rhizome short. Roots ca. 1 mm diameter, velamenous, sinuous, glabrous, white, not ramified. Stem 1-3 × 1 mm, cylindrical, with one apical leaf. Leaves 1-1.4 × 0.3-0.4 cm, elliptic to elliptic-lanceolate, showy, green to reddish-green, margin entire, central vein not very evident, adaxial surface plain and rugous, abaxial surface convex and flat. Inflorescence 4-6.5 cm long, racemose, erect, with three to nine flowers opening in succession, but with only a single flower open at a time, scape ca. 0.5 mm diameter, reddish. Flowers resupinate, predominantly purplish; sepals ca. 4.5 × 1 mm, free, green-yellowish at base, purplish towards the apices, margin entire, dorsal sepal elliptic-lanceolate, lateral sepals lanceolate; petals ca. 2 × 0.5 mm, lanceolate, green, with a longitudinal and purplish band at median portion, margin toothed; labellum 3-lobed, yellow with two longitudinal purple bands, articulated with the column foot, apical and lateral lobes rounded. Column 1.5 × 0.3 mm, dilated to the apex, ocreate, ocrea toothed, adaxial surface brown-reddish; stigmatic surface

ovate, concave; ovary 1×0.5 mm, conical; anther 0.3×0.3 mm, helmet-shaped, red-brownish; pollinarium with two obovate pollinia. Fruit fusiform, green, with brown-reddish longitudinal bands. (Figs. 1, 2).

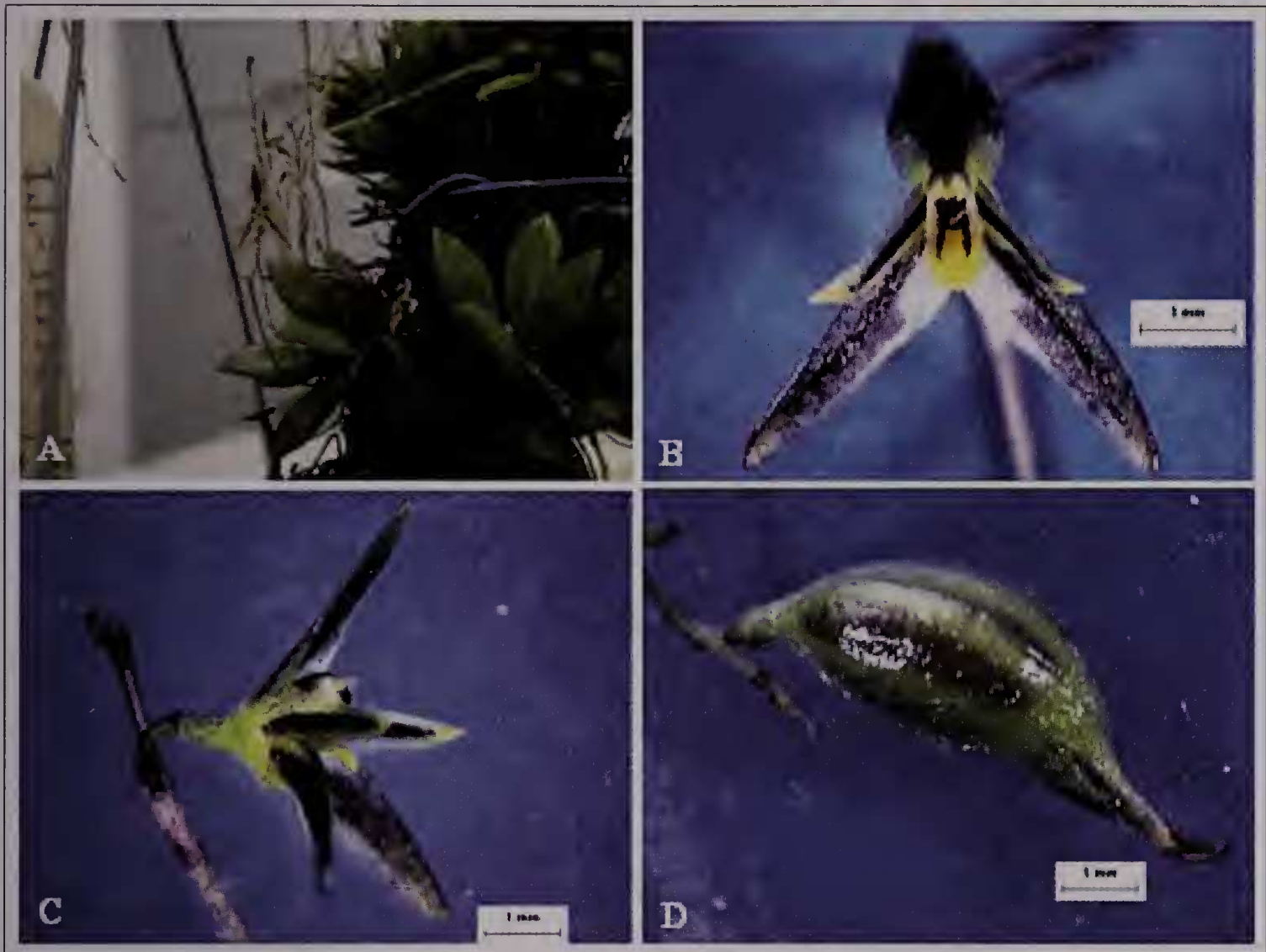


Fig. 1. *Anathallis marginata* (Barbosa Rodrigues) F.Barros & Barberena

A: habit – B: flower (frontal view) – C: flower (lateral view) – D: fruit (lateral view)

Material examined: BRAZIL. São Paulo. Mun. São Carlos, Fazenda Canchim, 12/III/2007, A.W.C. Ferreira 148369 (UEC, SPFR).

Flowering period of *Anathallis marginata* occurs from December to July. Fruit dehiscence occurs five months after pollination.

This species is characterized by small plants with elliptic to elliptic-lanceolate and fleshy leaf blades and a short raceme with purplish flowers opening in succession, with only one flower open at time. Cogniaux (1896) and Sprunger *et al.* (1996) report the occurrence of petals with entire margins for *A. marginata*. In the studied region, however, this taxon has petals with toothed margins, which probably is a local variation, as previously recorded by Pabst & Dungs (1975).

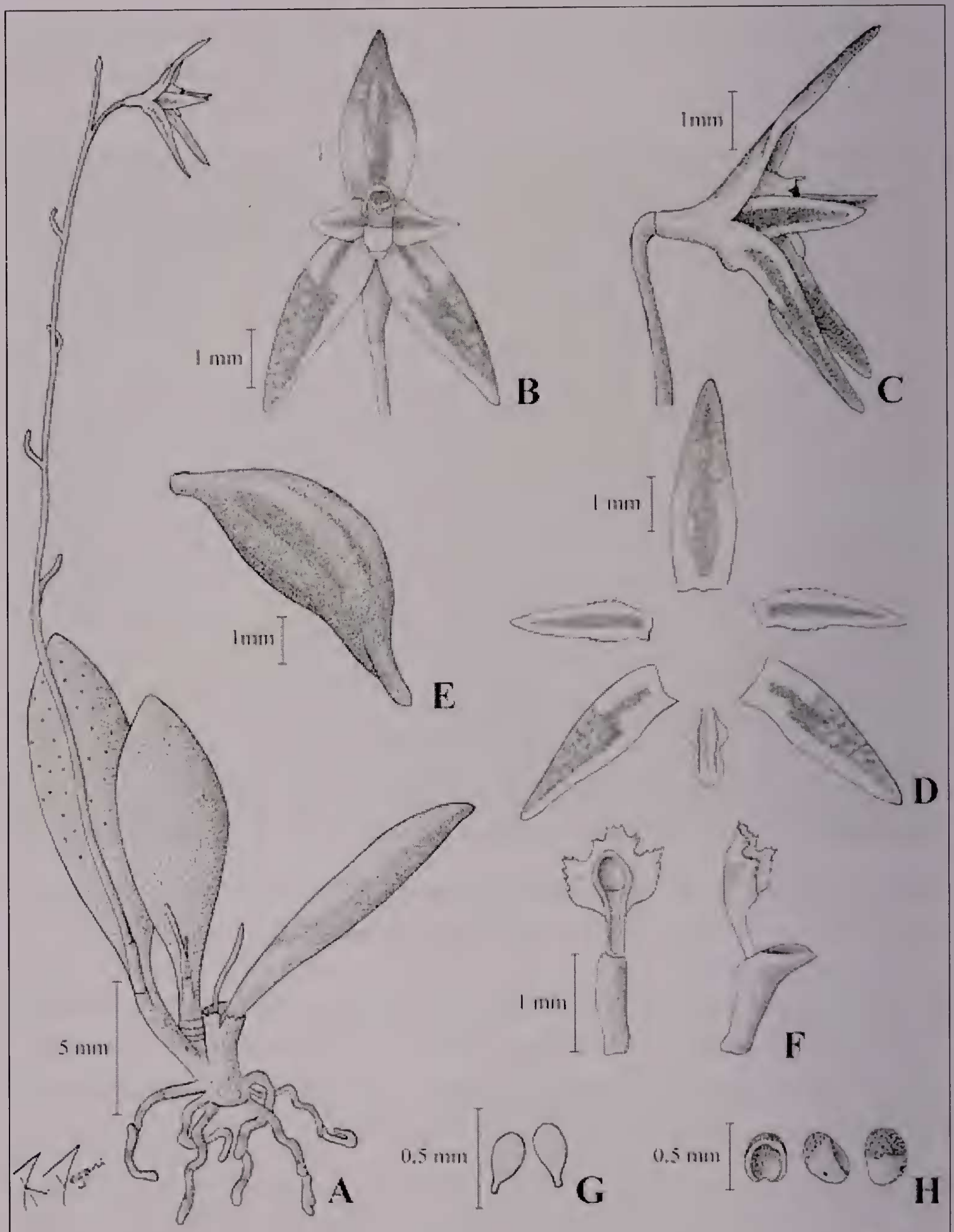


Fig. 2. *Anathallis marginata* (Barbosa Rodrigues) F.Barros & Barberena
A: habit – B: flower (frontal view) – C: flower (lateral view) – D: perianth parts – E: mature fruit (lateral view) – F: column (left: abaxial view; right: lateral view) – G: a pair of pollinia – H: anther (left: abaxial view; center: lateral view; right: adaxial view)

Anathallis marginata was found as epiphyte on *Copaifera langsdorffii* Desfontaine (Leguminosae), on *Cariniana estrellensis* (Raddi) Kuntze (Lecythidaceae) and on *Ceiba speciosa* (A.Saint-Hilaire) Ravenna (Malvaceae). In the studied region the species occurs in a forest fragment of 100 ha in an ecotonal area between Cerrado vegetation and a mesophytic semideciduous forest, in the municipality of São Carlos (SP) (Ferreira *et al.*, 2010). *Anathallis marginata* is the second *Anathallis* species found in the interior of the State of São Paulo (Ferreira *et al.*, 2010). Along the central portion of the State of São Paulo, *Anathallis obovata* (Lindley) Pridgeon & M.W. Chase is common occurring as epiphyte or as rupicolous along seasonal mesophyllous forests and marshy forests. In the State of São Paulo the genus *Anathallis* has also been recorded in Dense Ombrophilous Forests (Romanini & Barros, 2007).

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References

- Barros, F. de & F.F.V.A.Barberena, 2010. Nomenclatural notes and new combinations on *Anathallis* and *Specklinia* (Orchidaceae). *Rodriguésia* 61: 127-131.
- Barros, F. de, F.Vinhos, V.T.Rodrigues, F.F.V.A.Barberena, C.N.Fraga & E.M.Pessoa, 2012. Orchidaceae. In: *Lista de Espécies da Flora do Brasil*. Jardim Botânico do Rio de Janeiro. <http://floradobrasil.jbrj.gov.br/2012/FB011074>.
- Cogniaux, A. 1893-1896. Orchidaceae. In: Martius, Eichler & Urban (eds.), *Flora brasiliensis*. Vol. 3: 1-672.
- Dressler, R.L., 1993. *Phylogeny and classification of the orchid family*. Dioscorides Press, Portland.

- Ferreira, A.W.C., M.I.S.Lima, E.R.Pansarin, 2010. Orchidaceae na região central de São Paulo, Brasil. *Rodriguésia* 61: 243-259.
- Köppen, W., 1948. *Climatologia: con un estudio de los climas de la tierra*. Fondo de Cultura Economica, México.
- Kronka, F.J.M., C.K.Matsukuma, M.A.Nalon, I.H.D.Cali, M.Rossi, I.F.A.Mattos, M.S.Shin-ike & A.A.S.Pontinhas, 1993. *Inventário florestal do Estado de São Paulo*. Instituto Florestal de São Paulo, São Paulo.
- Pabst, G.F.J. & F.Dungs, 1975. *Orchidaceae brasilienses*. Vol. 1. Kurt Schmiersow, Hildesheim.
- Pridgeon, A.M. & M.W.Chase, 2001. A phylogenetic reclassification of Pleurothallidinae (Orchidaceae). *Lindleyana* 16: 235-271.
- Pridgeon, A.M., M.W.Chase, P.J.Cribb & F.N.Rasmussen, 1999. *Genera Orchidacearum*, Vol. 1. General Introduction, Apostasioideae, Cyripedioideae. Oxford University Press, Oxford.
- Pridgeon, A.M., M.W.Chase, P.J.Cribb & F.N.Rasmussen, 2005. *Genera Orchidacearum* Vol. 4, Epidendroideae (Part 1). Oxford University Press, United Kingdom.
- Radford, A.E., W.C.Dickison, J.R.Massey & C.R.Bell, 1974. *Vascular Plant Systematics*. Harper & Row Publishers, New York.
- Romanini, R.P. & F. de Barros, 2007. Orchidaceae: pp. 29-275. In: Melo, Barros, Chiea, Kirizawa, Jung-Mendaçolli & Wanderley (eds.). *Flora fanerogâmica da Ilha do Cardoso*. Vol. 12. Secretaria de Estado do Meio Ambiente, São Paulo.
- Soares, J.J., D.W. da Silva & M.I.S.Lima, 2003. Current state and projection of the probable original vegetation of the São Carlos region of São Paulo State, Brazil. *Brazilian Journal of Biology* 63: 527-536.
- Sprunger, S., P.Cribb & A.L.V.Toscano-de-Brito, 1996. *João Barbosa Rodrigues – Iconographie des orchidées du Brésil, Vol. 1: The illustrations*. Friedrich Reinhardt Verlag, Basle. 540p

La sous-tribu Pleurothallidinae est composée de 37 genres et 4 100 espèces environ, distribués dans les régions tropicales et sub-tropicales d'Amérique, depuis la Floride jusqu'à l'Argentine et dans les Antilles. Le genre *Anathallis* fut parfois inclus dans *Pleurothallis s.l.* mais il est maintenant traité comme genre à part, caractérisé par des sépales latéraux libres. Le genre comprend environ 120 espèces, distribuées depuis le sud du Mexique et les Antilles jusqu'au Brésil et à l'Argentine. Au Brésil, il est fort de 80 espèces, parmi lesquelles *Anathallis marginata*, une espèce

connue du Centre-Ouest (Distrito Federal), du Sud-Est (Minas Gerais et Rio de Janeiro) et du Sud (Santa Catarina), et poussant dans la forêt atlantique pluvieuse. Au cours d'une étude floristique dans la zone centrale de l'état de São Paulo, une population d'environ quinze individus adultes d'une espèce alors non identifiée a été trouvée. Après floraison, elle s'est avérée être *Anathallis marginata*, une espèce non encore enregistrée pour cet état.

Du matériel a été collecté dans la municipalité de São Carlos. Cette région est un écotone entre la Mata Atlântica et le Cerrado, de climat mésothermique avec un été pluvieux et un hiver sec. Ce matériel a fleuri en culture au Département de Botanique de l'Université Fédérale de São Carlos. La période de floraison s'étend de décembre à juillet, la déhiscence du fruit intervient cinq mois après fécondation. L'espèce est caractérisée par des plantes petites, des feuilles elliptiques à elliptiques-lancéolées, charnues, un racème court de fleurs pourpres successives, une seule ouverte à la fois. La population étudiée présente une variation (locale ?) : les marges des pétales sont denticulées.

Dans la région étudiée, *A. marginata* pousse en épiphyte sur *Copaifera langsdorffii* (Leguminosae), *Cariniana estrellensis* (Lecythidaceae) et *Ceiba speciosa* (Malvaceae), dans un fragment de forêt d'une centaine d'hectares. C'est la deuxième espèce d'*Anathallis* enregistrée dans l'intérieur de l'état, l'autre étant *A. obovata*, une orchidée commune au Brésil.

photographies p. 159 : Alessandro Wagner Coelho Ferreira

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